

LOGISTICS SYSTEM OF THE COUNTRY AS AN INTEGRATED ECONOMIC STRUCTURE

Проаналізовано цілі і особливості логістичних систем країни, виділено її елементи. Наведені приклади інституційної (суб'єктної) структури неформалізованих логістичних систем – ланцюгів поставок із залученням логістичної інфраструктури

Ключові слова: логістична система, логістична система країни, елементи логістичної системи.

Проанализировано цели и особенности логистических систем страны, выделены ее элементы. Приведены примеры институциональной (субъектной) структуры неформализованных логистических систем – цепей поставок с привлечением логистической инфраструктуры

Ключевые слова: логистическая система, логистическая система страны, элементы логистической системы.

In this article, the objectives and features of logistic systems were analyzed and its elements were highlighted. Given an examples of institutional (subjective) structure of informal logistics systems – supply chains involving logistics infrastructure.

Key words: *logistics system, logistics system of the country, the elements of the logistics system.*

Introduction. Economic activities in the field of social production are implemented by business entities that are members of business relations that implement economic competence (set of economic rights and duties). Relationship of entities is created by a single economic space, which is characterized by limited natural, industrial, human, financial, information resources and more.

This, in turn, causes a limited production of the final product and, consequently, limited consumption. Only the market as an economic category with an existing infrastructure coordinates issues about what and how much to produce, how to distribute in the conditions of limited resources.

Analysis of recent researches. Question of economic and logistic systems etymology, the definition of these categories were studied in the works of scholars such as M. Wasilewski, E. Krykavskyy, M. Mandurah, A. Mishchenko, M. Oklander Patora R., R. Larin, N. Chukhray and other . It should be noted that further research need problems of logistics systems formation and development at the macroeconomic level, and questions how to achieve competitive advantages for business entities through logistics concept.

Research methodology. Business entities in an unstable economy should be based on a systematic assessment of all factors by optimizing the use of materials, personnel, information potential, and so on. In its turn, to achieve an effective management it is necessary to use a systematic approach.

Formulation of the problem. Economic parameters of any system determined not only by internal but also by market relations. Therefore, in designing and development of logistics systems , the determining factor is determining the key elements such as the purpose, principles, criteria, functions, tools that improves the efficiency of investment decisions in logistics and its resource supply.

Results of research. Economic and organizational relations enable businesses to carry out exchange processes and bring the final product to consumers by implementing relevant transfer process. The current period of economic development resulted in the separation of a logistics services segment in its structure, the implementation of which occurs with the appropriate logistics structures..

Achieving the final goals of logistics activities participants depends essentially on the concept of logistics. The most complete logistics concept disclosed by Pfolem, who identified five basic characteristics of logistics [1]: thinking, focused on the value and usefulness, systematic category thinking; general (full) costs thinking; category service thinking; category effectiveness thinking. We believe that the last statement is also not perfect because it is only focused on thinking, while practical logistics aimed at activity , caused by these categories of thinking. That is the thinking provides activity, aimed at usefulness and cost, minimization of costs, service quality and optimum effectiveness.

In the interpretation [2] logistics is treated more as an activity in managing streams of raw materials stocks, other materials, goods-in-process, finished goods, services and finance. The above interpretation suits better our notions of logistics, because it includes the concept of business management, the concept of streams, not only physical, but also financial and informational. Finance category used in this assertion is rather broad, nevertheless cash flows are substantially different from the material due to differences in the formation of these flows, their storage, as well as the duration and cyclical flows.

The practice of modern logistics indicates the transition from local economic systems to integrated structures incorporated within the limits of supply chain flows and corresponding infrastructure. The structure like that becomes an integrated logistics system which is defined as a complex of structured micro-, meso- or macro-system consisting of material and related links streams that are united by common goals and interconnected by managing system. Logistic system becomes a place of material flow transformation, which implies a changing in parameters of time, place, quantity, composition, structure and quality of the material flow. Because of the logistics systems occurs the harmonization of all participants interests in the logistics process and as a result creates logistics product or service.

Describing the logistics systems it should be noted that the micro-logistics systems are more structured in comparison with macro-logistics systems. Therefore, the formation and development of logistics systems is a key factor of national success that motivates national organization level.

Analysing the literature sources about the research of problems in establishment and formation of logistics systems [3, 4, 5, 6, 7, 8, 9] we can see the absence of substantive developments concerning the formation of logistics systems of the country, the use of the term is almost absent. Instead, the vast majority of studies focuses on chains and networks supply that will allow the implementation of material flow from the source raw materials and supplies to the places of consumption / usage of final products. A feature of such flows, on the one hand, is the use of linear infrastructure of general purpose, and, on the other hand, the use of nodal infrastructure mainly corporate, own or acquired rights to it in one way or another (rented, by outsourcing, etc.). In contrast, the level of the country's logistics system requires the establishment of general availability and linear infrastructure (roads), and the corresponding part of nodal infrastructure (logistics, distribution centers). This understanding of the logistics system has allowed the country to define the concept of its creation and functioning.

The main purpose of creating the country's logistics systems is rationalization of flows distribution of goods both inside and outside the state so that should also be based on the timely provision comodality of transport. Describing the logistics system of the country it should be noted that it is a system of elements (objects logistics) interconnected by material flows of companies and supply or sale markets. Also, the logistics system of the country by volume covers whole economy, and on a territorial basis covers entire area of the country. The significance of the logistics system of the country is supported by the fact that it is a system to provide services to other sectors of economy.

By organizing elements of a typical logistics system, there are three components of it: nodal infrastructure, linear infrastructure and information infrastructure. Nodal infrastructure consists of three elements: sending points, points of transformation of material flows and points of goods receiving. Movement of goods in the logistics system of the country is realized through the use of various means of transport. The efficiency of the logistics system of the country can be increased primarily through the rational use of nodal and linear infrastructure of subsystem.

It should be noted that the logistics systems of higher order are less formalized in comparison with logistics systems of lower order. This is due to the partial use of general-purpose logistics infrastructure in created, for example, supply chains, their top links – by the producers of goods involving providers of logistics services by outsourcing. Examples of institutional (subjective) structure of informal logistics systems – supply chains with the involvement of logistics infrastructure are shown in Table.

Only enlarged analysis of the examples of supply chain with the involvement of logistics infrastructure indicates about multiversion of system and partial solutions concerning, first, the selection of method of the logistic processes (on their own or by outsourcing), all or part of them, secondly, the structure of logistics processes (the ratio of the duration, order, transport, storage, packaging costs, etc.) in the supply chain, and thirdly, the executors of these processes (systemic or specialized, permanent or sporadic (transactional), real or virtual, one or more, etc.) and their localization, fourthly, focus on final results in a static or dynamic aspect, and, finally, fifthly, to ensure harmonization of goals of sustainable development and corporate social responsibility conditions (CSR), as there may be conflicts of business goals with social and environmental goals. The foregoing argues special significance of economic aspects of macro-logistics systems that in some ways are tangent to the current theories of spatial economics, distribution of productive forces and regional economics, transport, material and theoretical support etc.. The extreme complexity of countries logistics systems formation the country we can see by comparing two versions of their construction: a) German version – based on deployment plan for highways, railways, waterways, sea and air ports of was developed a single integrated circuit network of logistics centers in the country (nodal sites), which is being implemented gradually; b) version RP – based on created network of motorways, spatial localization of industrial production takes place a spontaneous creation of nodal logistics facilities, mainly on the basis of build-to-suit (construction correspondingly to the needs of customer), but not for general purpose.

Therefore, for the further development of logistics systems next areas should be considered:

- searching for ways of the logistics system components transformation towards the urgent market conditions;
- evaluate and forecast changes over time of the structural building and functional relationships between its elements;
- Planning of certain possible states of systems and technology of its assessment;
- searching for ways to create a new quality in the implementation of services and particularly by minimization of the resource and time costs.

Examples of institutional (subjective) structure of informal logistics systems – supply chains with the involvement of logistics infrastructure

Sphere of activity		Production	Transport services	Warehousing services	Distribution services
Version of supply chain					
JSC "Kremenchug confectionary" Chain (Supply Network of products)	Name of entity	JSC "Kremenchug confectionary"	"Trans-Servis-1"	Company "Akris-logistic"	NOVUS
	Address	Poltava region, Kremenchug, Zhovtneva str., 57 www.kkf.pl.ua	Lviv, Ring Road, Skniliv village, http://trans-service-1.com.ua	The complex of buildings №4, Village Council Stanyshivska, Zhitomir district, Zhytomyr region., 12430 http://acris.com.ua/ua	Moscow avenue, 26, 3rd Floor, Kyiv, 04073, Ukraine http://www.novus.com.ua
	Description of services	Assortment of the company includes more than 70 items of confectionery products, including candy, caramel, chocolate and nut bars. Confectionery Corporation "Roshen"	Road transport services liquid, food, bulk, finished products, dangerous goods, building materials, large cargo and other by specialized trailers, tented semi-trailers and dump trucks in Ukraine, Europe and CIS countries	Storage areas, their modern equipment, the availability of all necessary internal warehouse equipment and infrastructure, partial automatization of work and efficient ordering of goods – all this allows us to be one of the best in the sphere of warehouse logistics. At the disposal of our company is huge hangars of warehouse space closed-and opened type of space sites	NOVUS network includes 23 stores and shopping centers in Kiev, Sevastopol, Cherkassy, Rivne and Ternopil.
Ланітор (мережа поставок продукції) ТОВ "КЛІЕОН"	Name of entity	LLC "Cleon"	Company "SAT"	"UVK Ukraine"	EPICENTER
	Address	04073, Kyiv, Syretska str., 9 http://www.kleon.kiev.ua/	Grodhenska str., 32, Kyiv, Ukraine http://www.sat.ua	Ukraine, 03045, Kyiv, Stolychne Highway 100 http://uvk.ua	http://epicentrik.com.ua/
	Description of services	Manufacture of furniture accessories, computer, office accessories and organizers in Ukraine	Transportation services of cargo transportation across Ukraine	Warehousing services, safekeeping of goods in Kiev and regions (warehouses in Dnipropetrovsk, Kharkiv, Donetsk, Odessa, Simferopol and Lviv), their material handling	National network of construction and business hypermarkets
Ланітор (мережа поставок продукції) ТОВ "НВП ІМВО"	Name of entity	OOO "NVP IMVO"	LLC "VTO INTERKOM"	Raben Ukraine	Distribution center
	Address	79005 Lviv, Shota Rustaveli str., 30, k 8 www.imvo.lviv.ua	Kul'chin village, Silicate Str, 1, Kivertsovsky district, Volyn region, Ukraine, 45241. vto.interkom@mail.ru	Brovarska str.,150, Velyka Dymarka city, Brovanskiy district, Kiev region., 07442, Ukraine http://www.raben-group.com	Rivne, Dvoret'ska str., 93
	Description of services	Domestic manufacturer of racking systems (shelving / racking design)	Forwarding services	Warehousing services (warehousing, cargo handling, storage administration, repacking, stickering, training metro units, promotional kits, etc..)	Warehousing and and storing of distributional products

Source: Own development

The difference between microeconomic systems, meso-logistics systems and macro-economic systems is, firstly, in the the priority of operational objectives, tactical or strategic, secondly, in the relative level of investment needs of formation and development of logistics systems, and thirdly, in the dominance of internal logistics, contract logistics and outsourcing of general purpose. Because of this, the process of logistics systems formation of the country as a typical macroeconomic system like "everything for everyone", as much as the creation of modern nodal logistics facilities across the country is capital – and time-intensive process and the effectiveness of its use (demand for a certain logistics services, their prices, the cost of delivering services, vulnerability to changes in the environment over time, etc.), and thus the return of capital is a big question. Therefore, it is important to visualize the investment attractiveness of logistics systems for potential investors – producers, distributors, suppliers, consumers, financial institutions, state bodies, developers, foreign investors, and other entities, population.

Conclusion. Proceeding from the concept of the system it is established that the country's logistics system is an organized integration of elements that allow in optimal way to achieve the objectives of the system, including processes of transformation of material flow. Logistics system of the country by volume covers the whole economy, and by territorial basis covers the the entire area of the country and becomes a system to provide services to other sectors of economy and implements tasks that arise from sending, receiving and storaging of goods in these areas. Logistics system of the country as a system of higher order is less formalized in comparison with the logistics systems of lower order. Fixed assets (resources) of the logistic system of the country are represented as three components that are available for general use: external transport subsystem, subsystem of goods locations, information subsystem.

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